DECATUR
Decatur Industries Inc.

**Response to the Request for Information No. 16-04
for a
MODERNIZED ELECTIONS SYSTEM for WASHINGTON STATE**

Decatur Industries Inc.

Contact: Michel Goffin
999 3rd Ave, #700
Seattle, WA 98155
Tel: +1 206 368 3178
Fax: +1 206 331 4876
Email: mgoffin@decaturind.com

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1   INTRODUCTION

We are very pleased to submit to you this document which summarizes at the conceptual level our approach and the resources we would bring to build a modern, efficient and integrated electronic elections system for Washington State (the "Project"). The Project, as we envisage it, will improve the interaction by all stakeholders (voters, candidates, election officials, etc.) with the system while at the same time create significant efficiencies for Washington, both at the state and county level. We strongly belief this can be accomplished without jeopardizing in any way the current benefit of having 3 state-certified EMS/VR providers and therefore no single point of failure and multi-tiered support for the various counties.

At this stage of project development, some relevant information may be missing or all aspects may not be clear to us. Similarly, it appears that several aspects of the Project may be subject to change. For that reason, we have designed a system that allows for easy customization and expansion, not just prior to implementation, but during the life of the Project as well.

1.1   Project Understanding and Objectives

From the information provided, we understand that the main objectives of the Washington State Election Officials ("WSEO") are as follows:

- A uniform system available to all counties, but configurable to the particular needs and preference of each county.
- A uniform Voter Registration Database ("VRDB") with advanced tools for deduplication, integration with legacy and/or other systems.
- A singular VRDB administration tool with extended functionality.
- A modernized Washington Election Information ("WEI") system encompassing:
  - A variety of public facing functionalities such as online voter registration, personalized election information, candidate filing, initiative filing, fee payments, etc.
  - A variety of tools for administration, language management, etc.
  - An easy way for individual counties to host derivative websites configurable to their particular needs and preference.
- Ballot support functionality (mail of ballots, online ballots, signature check).
- Result reporting for both internal and external purposes.

In addition to these stated objectives of WSEO, at Decatur we strongly feel that the Project provides an opportunity to address other goals that should be of interest to Washington State. They include:

- Easy but controlled access to the system from a wide variety of devices through a common and easy to use interface;
- Cloud based infrastructure to reduce the Washington's State investment in hardware and IT support. This can be either a private cloud or public cloud.

- Simplification of all functionality and related interfaces in order to reduce the need for user support and training.
- A system that, to a maximum extent, is based on a proven technology already implemented before with little need for new development.
- Easy extendibility of the system to accommodate added functionality, whether at the time of the initial implementation or any time thereafter. Such additional functionality may include:
    o Integration with DMV database for automatic voter registration, similar to the initiatives undertaken by California and Oregon.
    o The possibility of voters to track the status of their physical ballot (sent, delivered, received, counted, etc.), similar to the "Ballot Trace" initiative of Denver, CO.
    o The implementation of a variety of social marketing initiatives to support voter registration and/or voter participation.
    o The implementation of e-voting without jeopardizing the anonymity and data integrity of the vote. This could be similar to the handheld based voting used in Denver, CO for use by people living in assisted facilities.
    o Extensive interactive analytics through automated synchronization with third party visualization engine.

1.2   Background information on Decatur Industries

Decatur Industries Inc. ("Decatur") is a Delaware corporation established in 2005 and headquartered in Seattle, WA. Decatur Industries brings highly tailored turnkey solutions for large scale identification projects. Our activities focus on electronic vehicle registration, event access management as well as secure ID verification and documentation. Decatur manages projects worldwide combining its own technologies and expertise in project management with the hardware and software experience of our partners and subcontractors. Government agencies and large organizations rely on us as their trusted advisor in designing and implementing end-to-end ID solutions, from vehicle tolling and registration to biometric ID management and documentation. Examples of our projects include biometric and demographic data capture, identity card issuance and biometric matching, as well as ID verification and tracking using handheld devices or stationary RFID readers. Our solutions have been installed in many countries including some with difficult operating environments such as Bangladesh, Tajikistan and Moldova. Our technology was the key in enabling the first democratic elections in Nepal and the distribution of free healthcare to the poor in India.

Technology innovation is at the core of what Decatur does. The company emerged from long standing cooperation between Seet Internet Ventures Inc. (SIVI), a US technology incubator, and its overseas software development partners in South Asia. SIVI built several new core technologies that have gained widespread acceptance including display graphics for mobile devices, media recognition tools and advanced Point of Sale systems for the hospitality industry. Several SIVI affiliates have been acquired by major players including Adobe and Yahoo. SIVI's

technologies have been licensed to a wide range of players, in particular in the media industry (Viacom, Disney, NBC, Fox, ClearChannel).

Given its deep roots in digital signal processing and large scale matching technologies, Decatur focuses on applications that exploit this knowledge advantage. Our biometric identification algorithms rank among the best available in terms of accuracy and robustness against distortion (as tested by NIST). Our search technologies are known for their speed and low hardware requirements, making them cost efficient to implement even in case of very large scale N:N searches.

Recently, Decatur Industries, in partnership with CloudPWR, was chosen by the Washington State Department of Health to implement a registry for medical marijuana users. Many of the challenges inherent to such system (user ID verification, privacy concerns, audit trails, etc.) are shared with those of the envisaged election system. Decatur, therefore, feels uniquely qualified for the successful implementation of the Project.

1.3   Decatur's Commitment to Success

Decatur's clients are our best ambassadors. Our relentless pursuit of customer satisfaction through on-time, on-budget and on-spec delivery of complex turnkey solutions has earned Decatur an enviable reputation in the industry. Decatur only commits to few projects at any given time to ensure that each project receives the proper resources and attention. All levels of Decatur's management are fully engaged in each project.

1.4   Decatur's Unique Qualifications

Decatur brings some unique qualifications:

- *We understand technology*: Decatur has a long history of technical innovation in the fields of identification, application development and large scale database management. Technology developed by Decatur or any of its affiliate companies is in use by several Fortune 500 companies.

- *Significant resources*: Either direct or through our hardware and software partners, we have very significant resources at our disposal that can be called upon, including more than 100 software engineers.

- *Software and hardware agnostic:* Although Decatur has strong relationships with several well-known software and hardware vendors giving us preferential pricing, we are solely guided by the needs of the project in selecting the most appropriate software and hardware components.

1.5   Contact Info

Business contact:

> Michel Goffin
>
> Decatur Industries Inc.
>
> 999 3rd Ave, #700
>
> Seattle, WA 98104, USA
>
> Phone: +1 206 368 3178
>
> Fax: + 1 206 331 4876
>
> Email: mgoffin@decaturind.com

Technical contact:

> Mehrin Shahed
>
> Decatur Industries Inc.
>
> 999 3rd Ave, #700
>
> Seattle, WA 98104, USA
>
> Phone: +1 206 412 1338
>
> Fax: + 1 206 331 4876
>
> Email: mshahed@decaturind.com

2 PROJECT ARCHITECTURE AND DESIGN

2.1 SECURE ID MANAGEMENT

Decatur's proposal for the Project is based on Decatur's Secure ID Management System, a modular, end-to-end solution based on a Service Oriented Architecture leveraging XML technology. As such, the functional modules are accessible over standard Internet protocols that are independent of platforms and programming languages. The suite of modules is governed by a workflow and rules engines that is easily customized to many applications. Secure ID has been successfully employed to manage voter identification, national ID programs, machine readable passports and criminal databases.

Decatur's solution entails two separate implementations of its Secure ID Management System:

- A SaaS (Software as a Service) implementation accessible to authorized users only (Personnel of the Office of the Secretary of State – OSOS, county election officials), with very strict and configurable access rules. This is typically built around the latest Oracle IDM version.
- A public website that is accessible to anyone with an interest in learning more about elections and the process of voter registration. The portal can be linked to, or embedded in the main website. The website is accessible by all modern browsers running on any type of device (PC/Mac, tablet, smartphone). Specifically, the portal allows citizens to:
    - Apply for voter registration and, if so required under applicable law, apply for the issuance of a Voter-ID.
    - Input demographic data (name, date of birth, etc.).
    - Upload any supporting documentation (copies of birth certificate, other IDs, etc.) as may be required under applicable law.
    - Receive email notifications regarding application/registration.
    - Find nearby ballot drop boxes.
    - Other customizable functionality.

In some locations, Decatur has included the possibility to select the date and hour for appointment at the local voter registration office. Such functionality could be of interest to Washington State if Washington State were to follow the example of Oregon and California in linking voter registration to DMV issued drivers licenses. As such, DMV appointments could be made directly from the WA Elections website.

User Administration

The IDMS allows for a hierarchical access control mechanism reflecting an organization's line of authority and responsibility. It is used to configure access and privileges for all 0SOS or County staff personnel and sites. User management, coupled with Role Based Access Control (RBAC) makes sure that no unauthorized person can access any portion of the system and only the designated people for any particular function can only access the information for which he or she

has authorization.

Reports and Statistics

Our system supports a wide array of reporting options including pre-configured reports to help with data management and monitoring. These are configurable and customizable based on the client's needs and requirements. These reports can be exported using different formats such as PDF, Word, and Excel among others. Extensive 'Search' options are also available that allow staff members to search for records based on different parameters such as date range, name, ID Number, etc.

Reports would typically include, among others:

- Voter demographics – reports and statistics on voters, based on region, expiry date, gender, changes in address, etc.
- Voter participation statistics
- Ballot status statistics (how many sent, how many received, etc.)
- System usage – including user activity reports, operator specific reports etc.

These standard or customized reports are static. The data, however, can be made available in a dynamic way for visual analytics using tools such as Tableau, QlikSense or other. If so required, these dynamic visual analytical tools can be incorporated into the web application for use by OSOS and county staff in respect of statewide or county specific information.

Customized reports can easily be created for specific reporting purposes as may be required by ERIC (Electronic Registration Information Center), HAVA (Help America Vote Act) or similar.

Audit Trail

All data changes in the system are tracked and recorded.

- Change Logs hold information regarding the change made in the database field by a specific user on specific date and time, alongside containing old and new value. Moreover it contains the facility to describe the reason behind the change.
- Activity Logs contain the operation made by a subject on specific date and time with the status of the operation describing whether it is successful or not.
- Server logs are detailed to track individual user request trails and concurrent sessions.

Previous states of records can be viewed with meaningful replay capability by means of user friendly View, Sort, Filter and Navigate functions in the GUI.

3   PROJECT MANAGEMENT & IMPLEMENTATION

For a detailed description of our approach to project management and implementation, see our answer to RFI Question 6, in section 5.6 on page 15.

4   PROJECT EXPERIENCE AND REFERENCES

4.1   Summary

With over 200 employees and 5 offices, the Decatur group of affiliated companies operates on a team-based structure where each team is responsible for achieving goals set by the Project Manager.

Of our 200 employees more than 60% are programmers, 20% are non-technical or administrative staff and 20% of staff are working for our own projects working as Data Entry Operators and Managers. At Decatur, each and every project development is being pursued using a feed-forward communication approach with the clients for any assigned task; project managers play here a vital role in making the programmers apprehend the tasks. Our managers and programmers place great value on creating long-term relationships, and achieve this through open communication and the highest level of customer care. Because of this we can deliver complex solutions within the shortest possible time frame.

4.2   Recent Projects

Decatur has worked on many projects in the government and private sectors around the world. Its experience with projects involving large scale identity and credential management will be directly relevant for this project. We take this opportunity to highlight the following projects for your consideration.

Project Name: MANAGEMENT OF THE STATE AUTOMOBILE INSPECTION OF THE MINISTRY OF INTERNAL AFFAIRS OF THE REPUBLIC OF TAJIKISTAN

Client: GAI, Republic of Tajikistan

Duration of project: June 2013 - January 2014

Status: Completed
Completion date and extensions of time granted: January 2014. The project reached successful completion within allocated time and budget.

Tender price, variations and final cost: Over 4 million USD; no variation in final cost from quoted cost.

Role of Decatur:

Decatur has developed an integrated electronic system for the issuance of driving licenses and vehicle registrations, related functions such as license card personalization and lifecycle management, examination management and traffic violation logging.

The scope of work included installation of the following software components:
- Driving License examination system
- Driving License system
- Criminal record system
- Revoked License Import
- Automated fingerprint identification system
- Key management system

Quality standards, target performance levels: PERFORMED ACCORDING TO ISO 9001, ISO 27000, ISO 14001. ALL HARDWARE DELIVERED CE CERTIFIED

Project Name: AUTOMATED SOLUTION FOR PRODUCTION AND DISTRIBUTION OF LICENSE PLATES IN MOLDOVA

Client: The Center of State Information Resources "Registru", Republic of Moldova

Duration of project: September 2013 - January 2014

Status: Completed
Completion date and extensions of time granted: Jan 2014. The project reached successful completion within allocated time and budget.

Tender price, variations and final cost: Over 2 million USD; no variation.

Role of Decatur:

This solution includes the production of high security number plates, printing and embossing services, quality assurance, inventory tracking, and shipment modules.

Deliverables of this project include:
- Ordering module
- Quality assurance module
- Inventory tracking and management module
- Shipment and delivery module
- Database
- Related computer hardware and software
- Installation, training, support

Quality standards, target performance levels: PERFORMED ACCORDING TO ISO 9001, ISO 27000, ISO 14001.

Project Name: RETRO-REFLECTIVE VEHICLE NUMBER PLATE, RFID TAGS AND SMART REGISTRATION CERTIFICATE (VEHICLE OWNERSHIP CARD)

Client: Bangladesh Machine Tools Factory Ltd. (BMTF)

Duration of project: 15 years

Status: Ongoing
Completion date and extensions of time granted: 15 year contract continuing.

Tender price, variations and final cost: Fixed price per vehicle registered. Total expected project size in excess of $50 million.

Role of Decatur:

Decatur has a 15 year contract with Bangladesh Machine Tools Factory (BMTF) to provide an electronic Vehicle Registration System as well as *Retro-Reflective Vehicle Number Plates, RFID Tags and Smart Registration Certificates* for vehicles, registered under the Bangladesh Road and Transport Authority (BRTA). The scope of work for the contract includes the following activities:

- Supply of machinery, equipment, hardware, logistics etc.
- Development/procurement of software application, licensing etc.
- Establishment of central personalization and packaging station for Number Plates, RFID Tags, Smart Card Registration Certificate with sufficient number and capacity of printers, hardware, software, logistics, manpower, VPN connectivity etc.
- training of Police, Purchaser and Vendor staff to use the customized system;
- Setting up Biometrics enrollment stations with requisite infrastructure, manpower, logistics etc. at all BRTA locations;
- Develop and maintain an efficient queue and appointment management system at all BRTA locations with required logistics and manpower;
- Establish and maintain at least 12 (twelve) RFID stations at different traffic locations in Dhaka city with physical infrastructure, logistics, manpower;
- Develop and provide a Key Management System;
- Develop and maintain an on-line and off-line authenticity verification system of smart card registration certificate by BRTA/Police staff;
- Operation and maintenance of the whole system throughout the tenure of contract.

Quality standards, target performance levels: PERFORMED ACCORDING TO ISO 9001, ISO 27000, ISO 14001.

5   RESPONSES TO RFI QUESTIONS

5.1   Validation of Business Requirements

Decatur has carefully reviewed all 463 requirements for the Project. In doing so, we categorized each requirement into one of 5 possible categories:

(1) Our present system currently fulfills entirely the requirement;
(2) Our present system largely fulfills the requirement but some development and customization is required;
(3) The requirement is on our present development plan but remains largely incomplete.
(4) The requirement is new to us.
(5) The requirement is not sufficiently understood at this time to allow for categorization.

Our review revealed that:

- A large majority of the requirements can be presently met by our system;
- The requirements in categories (4) [new requirement] and (5) [unclear] represent only a very small part of the requirements. Some would be best addressed through our own development work, other would benefit from working with solution providers that specialize in these subsets of technology. Examples of the latter may include ballot addressing and sorting (to benefit from bulk mail rates), ballot tracing, and payment processing.
- All development work in respect of categories (2) [customization required] and (3) [under development] are fairly well understood and could be completed within normal time frames without jeopardizing, in any way, the anticipated timeline for the Project.

Some additional comments on the Business Requirements

(1) Some requirements may have more elegant solutions than those envisaged by the present wording of the requirement (e.g. #s 52 and 95);
(2) The implementation of some significantly depend on external factors, such as the availability and quality of APIs for data to be imported (e.g. #s 58-67, 99-107, 108-112);
(3) Adjudication procedures are not fully understood and may impact the interpretation of certain requirements (e.g. # 110);
(4) Some requirements are subjective and require further refinement or standards (e.g. # 29);
(5) A good understanding of present or desired workflows would greatly facilitate the design of the system, for example in regard to Election Setup (#s 394-408) ;

In summary, we do believe that all requirements are feasible.

5.2   Identification of Exotic Requirements

Consistent with our comment under Section 5.1 above, we do not believe any requirement to be exotic. Nevertheless, if budget constraints were to significantly limit the scope of the Project, a prioritization of requirements allowing for the possible delays in the implementation of less urgent requirement, might improve the overall cost feasibility of the Project.

5.3   Recommendation for High Availability

Our system utilizes streaming database replication to provide continuous data backup to a datacenter in a different region of the United States to provide the highest level of fault tolerance. Since all changes to the database are streamed immediately after they occur, the system is always available and no performance penalty is incurred. We also take nightly snapshots of our database that are encrypted and stored in replicated backup storage that minimizes risk to the backup files. These backups are retained for a period of time long enough for us to provide us with a recovery point no later than 24 hours in the past in the case of a catastrophic loss of both our primary database server as well as our physically remote replication server at the same time.

The nature of our streaming replication allows for limited availability of point in time recovery to recent changes. Additionally, with strong transactional integrity, our system ensures that only fully committed transactions are included in the database in the case of a system failure.

This architecture for high availability can be implemented both in a private-could or public-cloud environment. We strongly believe that there is additional comfort to be gained from employing class leading cloud solutions such as offered by companies like Amazon, Microsoft, Oracle and others.

5.4   Disaster Recovery

The data center (DC) will have redundant hardware for all relevant functions to ensure that there is no single point of failure.

To ensure that no data is lost and that operations can run uninterrupted in case of unforeseen circumstances affecting the data center, we propose a data recovery (DR) site with live replication. This site will have complete set of servers able to carry out operations at the event of a catastrophic failure resulting in total system loss at DC.

It shall be able to prevent data loss and downtime by maintaining a synchronized physical replica of the DC database DR location. If there is an outage, client connections quickly failover to the standby and resume service.

The principle characteristics of the DR site are:

-   Availability of application, database and other necessary servers to carry out business operations in the absence of DC.

- All operations – insertions, update, delete, will be logged and replicated at DR in real time. Thus, the DC shall retain a full data backup in its storage units.
- Real time Data synchronization with DC.
- Further backup of Data on Tape drive.
- The DR system may be deployed in a different location/provider; to further ensure that the disaster at DC does not affect the DR.

5.5   System Integration Approach and Methodology

The proposed election system shall be designed based on Service Oriented Architecture (SOA). With SOA architecture, all the sub-systems are loosely coupled as separate independent modules. This architecture dramatically reduces the complexity of integration.

SOA Integration provides a flexible and dynamic IT Infrastructure that transforms brittle systems, applications and data sources into highly flexible, reusable service components. With SOA, it will be possible to create APIs and Web Services accessible by external systems, for example, existing state or county systems that may be retained due to some special considerations.

The system provided by Decatur exposes the different services that can to be accessed by external systems via API calls, for examples calls to request identity information from the central system, record update request, etc.

In the unlikely event where an existing/external system is found to be incapable of integration through SOA, secure export/import capability can be provided to exchange information between systems through XML or CSV files.

There are multiple ways to exchange data over the web. We propose to consider "web services" which have emerged as by far the most common methods for simple transfers: SOAP (Standard Object Access Protocol) and REST (Representational State Transfer). Both SOAP and REST transfer data via the standard HTTPS transfer protocol.

5.6   Project Management Approach and Methodology

The agile method is a low-overhead method that minimizes risk by making sure that software engineers focus on smaller areas of work. Agile methods work in cycles, typically of a week or a month, and at the end of each cycle, the priorities of the project modules are re-evaluated. This is similar to iterative methodologies which also re-evaluate at regular intervals.

5.6.1   eXtreme Programming (or XP)

eXtreme Programming is defined by its creators as a deliberate and disciplined approach to software development. It emphasizes teamwork and customer satisfaction, which explains XP's success in the software design. eXtreme Programming is governed by a set of rules and practices that are broken down into planning, designing, coding and testing.
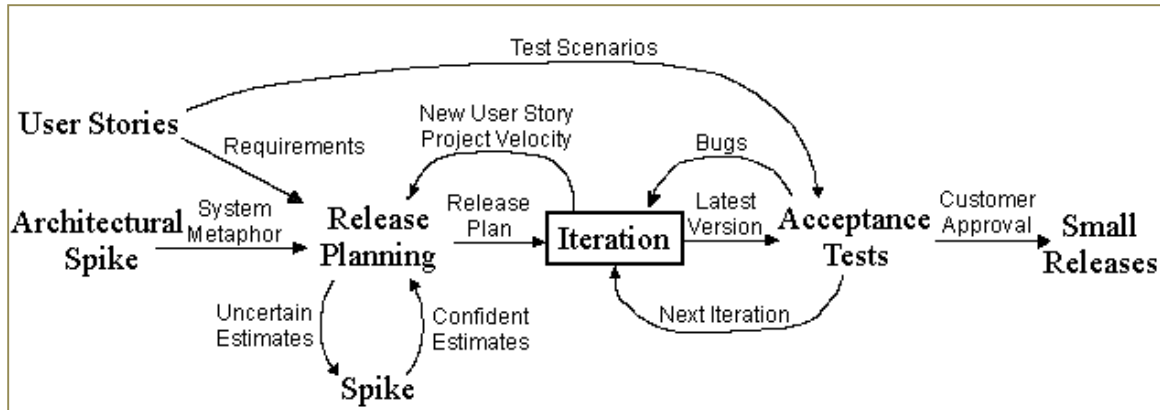
XP (Software Development) Work Flow

5.6.2 Scrum

Scrum is based on a "Sprint," which is a certain period for delivering a working part of the system. Each Sprint starts with a two to three-hour planning session that includes the customer (product owner), the facilitator (Scrummaster) and the cross-functional team. The customer describes the highest priority in the backlog, and after the team agrees on how much of it to do, it is left alone to do it. To keep the team synchronized, there is a 15-minute meeting every day. At the end of the Sprint, the results are delivered and reviewed, and the next Sprint is started.
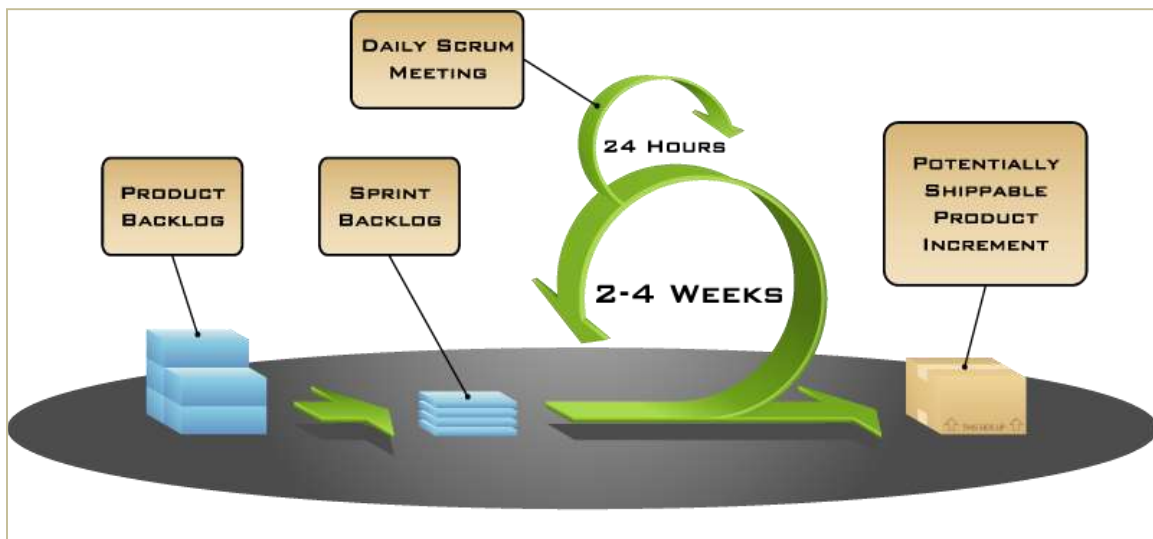
Scrum (Software Development) Work Flow

5.6.3 Data Quality & Migration

We often encounter situations in which source identity and directory data (e.g. with respect to citizens' names and addresses in local registries) is incomplete. This may include multiple entries

for the same person or any other conflicting data. Depending on the volumes, sources and history, the Project may require us to use IDM tools (e.g. OVD, OIM etc.) to facilitate identity correlation and reconciliation.

Data migration will be performed by maintaining following steps -

Step 1: Collecting information on existing data

The following information will be collected from existing database.

- • Format and media of existing data,
- • Dump of existing database schema.
- • All available documents.

Step 2: Analyze and define imported files

Data collected will be analyzed by the responsible persons and corresponding Import Definition files will be written. Import definition files will map import fields with new database fields and define data conversion rules.

Step 3: Installation and dry run

After defining, completing and testing modules, it will be installed on the main servers. A few dry runs will be performed to ensure integrity.

Step 4: Importing data

Once all things are ready to go, the import process will be run. Typically, this will involve the following steps.

- • Run import.
- • Check error messages.
- • Fix Import Definition file accordingly.
- • Truncate the imported data and loop until no errors are generated.
- • Manually test and check imported data and try to find any inconsistency or missing element.
- • Fix Import Definition file accordingly until everything runs as expected.
- • Finally once again truncate the database and run the final and real import.

5.6.4   Customization, enhancements, and development of necessary interfaces

A clear understanding of customization requirements is imperative for smooth implementation. For that reason, Decatur will appoint a dedicated project managers and supporting staff who will work with Washington State Election Officials on defining the exact requirements for the Project.

5.6.5   Example Phasing, Tasks and Deliverables

The various phases typical to a project like this can be summarized as illustrated in the following graph:
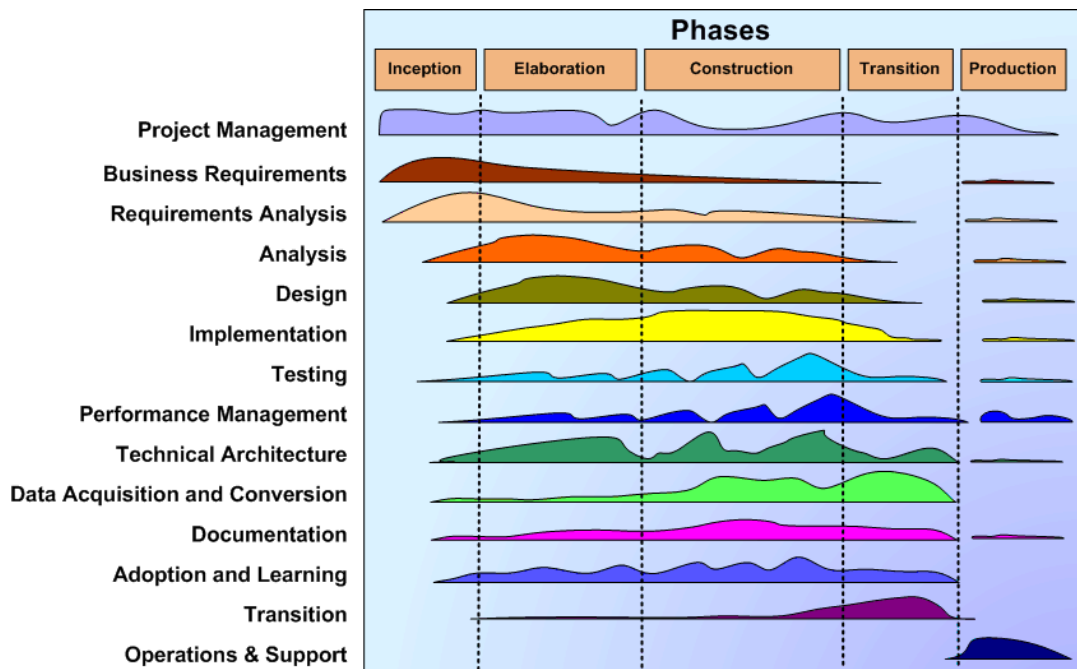
5.6.5.1   Inception Stage

Example Tasks

- Requirement analysis.
- The requirements will be reviewed and the final list of requirements to be implemented will be agreed. A MoSCoW list (must, should, could, won't have) of the requirements may be produced (if not already created) concentrating on the ones which are real priorities for OSOS. All use cases and workflows that need to be implemented will be reviewed with clear indication of actors and main steps. It includes analysis of authoritative sources with particular attention to the attributes and related target systems and provisioning rules.
- Strategic Solution Architecture Roadmap Understanding the roadmap and architectural landscape and challenging any assumptions and constraints.
- Product training for OSOS and County staff.

Example Deliverables

- Requirements analysis / Requirements document.
- Roadmap clarification.
- Product training and materials.

5.6.5.2   Elaboration Stage

Example Tasks

- Analysis of architectural principles and design constraints.
- Analysis of Provisioning & Reconciliation to/from target systems. Communication protocols, access methods, reconcile needs and related associated monitoring.
- Analysis of infrastructure communications, access methods (SSO), user interfaces and monitoring.
- Identity Data modeling.
- Capacity, Scalability and Performance planning.
- Physical architecture assessment and necessary components, physical design and final blueprint of the production and test environment.
- Creation of Functional Specification and Architecture document.
- Creation of Test Strategy - Assessment of test strategy necessary to test and accept the system. Indication of necessary testing tools and environment.

Example Deliverables
- Identity data model
- Capacity, Scalability and performance plan
- Physical architecture report
- Functional Specification and Architecture document
- Test Strategy document

5.6.5.3 Construction Stage
Example Tasks
- Design of access policies in Identity Manager
- Design of first reconciliation (authoritative source)
- Design of business process and related approvals
- Design of connectors to target/source systems
- Design of availability and recovery
- Detailed technical design
- Example Deliverables
- Detailed Technical Design Document(s)

5.6.5.4 Transition Stage
Example Tasks
- Installation and Configuration of dev environment
- Development of the solution according to the design document specification
- System Testing (on UAT)
- Installation and port configurations to Test environment (Dev – UAT)
- User Acceptance Testing
- Deployment and Maintenance Guide
- Installation and Port configurations to Production environment (UAT – Prod)
- System Testing (on Prod)

Example Deliverables
- Dev, Test and Production environment configuration
- Deployment and Maintenance Guide

5.6.5.5   Tentative Project Plan, Schedule& Milestones
Prior to undertaking the project, Decatur will commit to a project plan that follows a well-defined schedule and includes and extensive set of milestones.

5.6.6   Project Resources

Our project plan includes specifics on the resources that Decatur will bring as well as the resources that are expected from our customer. The overall objective is to have clear delineation of responsibilities and the least amount of disruption to SOS' operations.

5.6.7   Modular approach to deployment

The proposed solution contains a number of software components, or modules. While together they provide tightly integrated security architecture, each can be deployed independently so that a staged, or modular approach to the deployment can be achieved. Part of the initial foundation stream would be to determine the most efficient or beneficial deployment model.

To minimize the risk and impact of a big bang approach to deployment, it may be advisable that some applications be grouped together as a functional module.

5.6.8   Project Monitoring and Evaluation

Project monitoring and evaluation is integral to our project management. The Project Manager is responsible for measuring the project's progress and taking corrective actions when the project's performance deviates from the plan. Progress will be tracked for each of the deliverables as specified in the RFP. Different project management software will be used to track and evaluate progress:

Tool	Description	Resource Management	Cost Management	Schedule Management
Microsoft Project	Planning/Tracking	√	√	√
Microsoft Excel	Planning/Tracking	√	√	√
Microsoft Word	Documentation	√	√	√
Jira (or similar)	Planning/Tracking	√		√

Table 1: Tools for Project Monitoring and Evaluation

Project monitoring and evaluation will give an understanding on project progress and visibility which allows all the involved stakeholders to see the evolution of the project and to take timely

corrective actions when the project's performance deviates from the plan. Progress reporting is crucial for risk management and assessment. We will follow the following reporting guidelines:

- Keep a list of every task.
- Divide larger tasks into sub-tasks.
- Assign task priority which can be Immediate, High, Normal, Low or Delay.
- Store current status of each task. Status can be Waiting, Assigned, Scheduled, Developing, Testing, Delivered, Implemented, Monitoring or Closed.
- Assign task to a staff.
- Forward task to a different staff.
- Store estimated man hours for each task.
- Assign timeline and schedule for each task.
- Calculate percentage completed based on project's current status.
- Show project overview and completion percentage by aggregating over current status of all subtasks weighted by its allocated man hours.
- Provide support for comments, discussion and attachments.
- Automated Gantt chart generation with progress line.

Issues and problems which are encountered anywhere in the project organization are expected to be resolved immediately. Issues log shall be maintained by the originating group and are expected to be tracked until closure.

5.6.9 Scope/Change Management

The Scope Management will be carried out to identify clear boundaries of what is to be implemented and key work products to be produced. **Change Management** is the second key component of the overall Scope Management process. The objectives of scope change management are to capture, evaluate and approve change requests to agreed project baseline.

5.6.10 Risks and Mitigation

We follow standard project risk management methodologies, including the use of tried and proven ways to commercial application development, keeping things simple, prioritizing development of the most fundamental tasks first, rapid development of a prototype, iterating over small incremental improvement rather than starting with a big scale design, active monitoring, no GUI only scripts, extensive logging, and risk change matrix etc.

Risk review will be a part of regular status meetings.

5.6.11 Quality Management

Quality management is broken down into three sub processes:

- Quality Planning
- Quality Control
- Quality Assurance

Acceptance criteria will be defined at project start-up, test and testing plans will be developed in line with the acceptance criteria and demonstrated during systems testing and user acceptance testing.

Further details regarding our Test and QA procedures will be described in a separate 'Quality Assurance & Test Plan' document.

5.6.12 Communication Management

Among the many facets of project management, communications planning is one of the most critical to the success of the project. During project start-up, a communication plan will be created which identifies all stakeholders, roles, responsibilities and communications. Effective project communications require consistent, accurate and complete reporting of progress and status. The project manager will be responsible for developing the communication plan, training the project team on the plan's importance and maintaining the plan.

Anticipated communications include:

- Implementation workshop meeting with all application owners (at OSOS or counties) to learn about existing application topology.
- Regular onsite requirement meetings with individual application owners (at OSOS) during implementation.
  - Weekly project status reports to the client's Program Manager through online communication.
  - Regular project management meetings with Program Manager and Business Solution Sponsor to discuss implementation plan, workflow, module selection, status reporting etc.

5.6.13 Testing

As part of our implementation methodology, the project team will agree upon a Testing Strategy. This strategy would outline the level of testing and the roles and responsibilities for delivering it during the project.

As part of this strategy, the Decatur project team will work with OSOS to ensure that appropriate levels of testing has been carried out both during the solution development cycle. This will cover, at a minimum:

- Functional, Non-functional testing & UAT
- Stress / Load Testing
- Penetration Testing
- Compliance Audit

All upgrades and patches should be tested on Development and UAT systems before being migrated into the production environment.

If so required, penetration testing of the overall solution may be carried out by a 3rd party organization.

For more details on testing, see our response to RFI question 12 in section 5.12 on page 26.

5.6.14 Acceptance and Project closure

The key element of this stage is to check that the project work product meets the customer's expectations by carrying out User Acceptance Testing (UAT). UAT test cases will be provided to the client. Users will carry out the test cases and notify the Project Manager of any issues.

5.6.15 Training and conversion

Training needs are identified at the Inception Stage of the project.

Details are in our response to RFI question #13 in Section 5.13 on page 27.

5.7 Funding Approach and Cost Distribution

Decatur will work with OSOS to device a pricing structure for the Project that:
1. Maximizes the use of unallocated balances under committed HAVA funding by tying, to the extent possible, the project costs to various HAVA objectives;
2. Allows for spreading the financial burden of the project over the Project's life in line with existing or expected budget allocations;
3. Provides a mechanism to have the financial burden of the system shared between the State and the various counties. Such sharing can be based on several parameters such as:
    a. Size of the county (e.g. number of inhabitants, registered voters);
    b. Actual usage including, but not limited to:
        i. Voter turnout;
        ii. Number of offices up for election, or number of candidates, or number initiatives or measures voted on;
        iii. System usage data;
        iv. The degree of customization of the system required at County level. To that extent, Decatur has an arrangement with a local branding company (Viatribe LLC) for branding assistance / web design to counties at predetermined cost.
4. Decatur's system will allow for easy reporting of such costs to the various constituencies that participate in the funding.

5.8 Data Conversion and Migration

Decatur has extensive experience in data conversion and migration, specifically in respect of large scale demographic databases. [MEHRIN – CAN WE COPY SOMETHING FROM OTHER PROJECT, DESCRIPTION OF OUR APPROACH]

5.9 User Experience Design Approach and Methodology

Decatur strongly believes that any UI design should be based on the following principles:
1. Reflect present workflows, unless a strong argument can be made to alter such workflows for the sake of improved efficiency or error reduction.

2. Simple and intuitive so as to reduce the need for user support.
3. Consistency in layout and the use of use of common elements. This refers to both commonality within the system as well as commonality with other systems such as popular productivity tools.
4. Clear hierarchy of tasks, pages, etc.
5. Smart use of default values for data entry (if appropriate) as well as easy and logical navigation between input fields (automatic progress, or use of tab function).
6. Easy navigation between pages with the aim of reducing the number of clicks.
7. Leveraging existing single sign-on procedures and technology of OSOS and county staff.

Decatur will employ a User-Centered Design approach to guide the development of EMS/VR system. The recommended process is briefly summarized below:
The initial phase of informed design will analyze business goals and conduct user research through semi-structured interviews with stakeholders and potential end users of the proposed system.
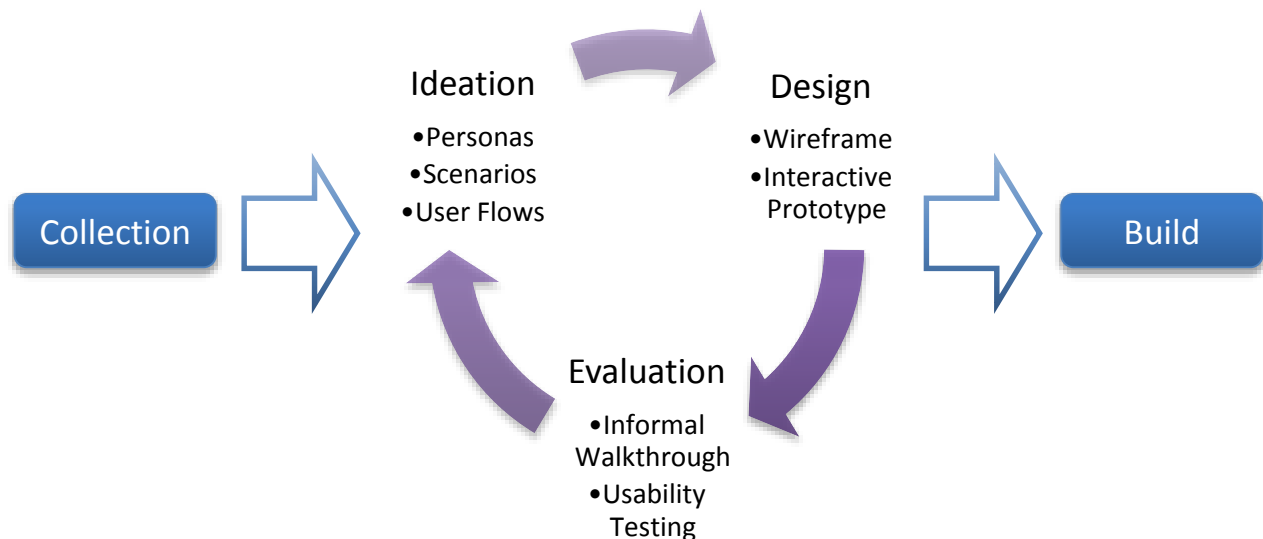

Figure: Proposed User-Centered Design Process

Findings will be synthesized to lead the iterative interaction design process starting with outlining major user personas, corresponding scenarios and information architecture. Alternate design wireframes will be created for the core workflow areas of the system as testable interactive prototypes. Design ideas will be refined and narrowed down to one best approach through informal walkthroughs.
Usability testing will be conducted as part of a formative evaluation technique within this iterative process to align with the agile product development methodology. Testing will be conducted to capture qualitative and demographic observations employing scenario driven test script, think-aloud protocol and semi-structured interviews.
Restraints and adoption of design process in context of the project:

- Informed design will primarily use findings from requirement analysis and remote interviews and no ethnography or contextual inquiry methods due to lack of in-situ access to user base.
- Quantitative measures such as time-on-task and System Usability Scale (SUS) will not be assessed in the initial development phase being unable to account for effects of learning in the fragmented workflow scenarios adopted for formative evaluation.
- Remote usability tests may be conducted using online collaboration tools such as InVision App and WebEx.

5.10 System Support, SLA and

System uptime commitments would be government as follows:

1. In case of a Public Cloud implementation: by the SLA governing the hosting service (Amazon AWS, Microsoft Azure, Oracle Government Cloud, or similar). Such agreements typically provide uptime guarantees of at least 99.95% with significant pricing discounts (on a sliding scale) if uptime drops below such level. These discounts would be applied against the hosting portion of the Project costs.
2. In case of a Private Cloud implementation: by Decatur's own SLA which mimics the SLA of public cloud providers.

Decatur's customer support operations are available at a minimum during normal business hours (Pacific Time Zone). Availability can be extended as needed or desired by OSOS. This may include the extension of support times during critical periods around election time.

Every system installation by Decatur comes with our continued commitment to bug fixes and efficiency updates. Because the implementation of the Project mimics systems implemented elsewhere, the Project has the benefit of our experience with similar implementations and ongoing support to such projects.

5.11 Contract Vehicles and Strategies

Decatur takes pride in on-time and on-budget completion of its projects. If the Project is awarded to Decatur, the contracts will be structured to minimize any financial risk to OSOS in case of incomplete Project implementation, quality issues with the delivered system, insufficient support, or any other factor that reduces the value to OSOS of the Project. The contract will:

1. Be based on the contract template currently being used by the State of Washington for projects of this type, with as little deviation as possible.
2. Include:
   a. A detailed Statement of Work with reference to all technical and business requirements;
   b. A project schedule with penalties for any unjustifiable delays;

  c. A process for change requests with pricing based on a predetermined cost schedule;

  d. A payment schedule that foresees segmented payments based on delivery and/or acceptance.

3. Define deliverables in a way that would allow for substitution in case of need. Examples may be:

  a. Change in hosting service (Amazon AWS, Microsoft Azure, etc.);

  b. Change in consumer support contractor;

  c. Change in provider of USPS compliant mailing software.

4. The availability in escrow of all compiled and source code, documentation and any other materials necessary for the continuation or further development of the system in case Decatur were to be in default.

5.12 Testing

Decatur has a qualified team of testers with various skills and years of experience, both of which are essential for effective testing. Testing is an extremely difficult and challenging task and the testers need to possess various skills set in order to be good at their jobs. We believe that the more knowledge and experience the testers have, the better they can investigate and preempt problems. This is why members of our testing team continuously engage themselves in learning and practicing programming, database development, server administration, technical writing, people management, investigative skills, experimenting skills, human psychology, customer support, business analysis, user experience analysis, etc.

At Decatur, we have well established testing policies and procedures (inclusion of which into this document would exceed the size limit for this RFI response). Any project involves the establishment of a testing strategy agreed upon with all stakeholders. They typically involve several forms of testing (functional, structural and exploratory testing) and make use of advanced reporting and collaborative tools, bug tracking modules, etc. Performance and Security Testing (including penetration testing) gets specific attention.

In implementing the Project, the infrastructure must support three separate and fully independent environments: (i) Development, (ii) Quality Assurance/Testing, and (ii) Production. The QA/Testing environment (sandbox) will be populated with fictitious but believable data so that all aspects of the system can be fully tested.

For this particular Project, we believe the testing strategy should involve an iterative approach until each function is tightly aligned with the business requirements defined in the requirements document or uncovered during the more detailed scoping process. As the solution gets closer to final form, we will utilize the Deliverable Acceptance forms, processes and timeframes as typically outlined in the applicable SOW. In this way, incremental functionality can be released in smaller cycles, and work is performed in a highly collaborative manner.

Because Secure ID is already a fully tested SaaS solution that will be adapted specifically for this project, the focus is on testing customizations and added functionality. We will build out and test

functionality in an iteration, or sprint, almost like a miniature software project of its own, because it includes all of the tasks necessary to release the incremental new functionality.

Agile methodology emphasizes real-time communication, preferably face-to-face, versus sole reliance on written documents and rigid processes. In addition, one of the most broadly applicable techniques introduced by agile processes is to express product requirements in the form of user stories. This makes it much easier for non-technical stakeholders to accurately describe and understand how the software will work for them.

5.13 Training

As presented in section 5.9, proper UI design goes a long way in reducing training needs, in particular if UIs are designed to reflect present or desired workflows and adhere to a structure that is, to the extent possible, consistent with the current system. All the principles laid out in section 5.9 will reduce training needs. Training will be further guided by the following principles:

- The distribution of preparatory information prior to a training event.
- A logical division of training into "How to" sessions, which sets specific learning goals for each session.
- Diversity of learning and presentation methods to accommodate the wide variety of learning styles among participants (balance of challenge and support, one way versus participatory, etc.) to leverage multi-component learning.
- Build both capability and confidence.

Typically, a project would entail 3 levels of training:

- To the extent OSOS has in house capacity to train, we would foremost "Train the Teacher"; this will have both a positive budgetary impact and will promote a sense of ownership in the training outcome.
- Training of OSOS and county level staff involved in the administration of the solution. This group will receive onsite (for OSOS and possibly large counties) or off-site (for the smaller counties) training on how to administer and configure the software. Alternatively, remote training can be organized using common tools such as GoToMeeting.
- General user training through the availability of significant training materials including video tutorials, online manuals and documentation as well as extensive support (FAQ, email, chat, live), all available from within the application. Because the proposed system is a SAAS solution, updates and improvements can easily be introduced in response to frequent support issues or added functionality.

5.14 Documentation

Documentation is prepared at two levels:

(1) In support of system users, various forms of documentation will be available online such as a Getting Started Guide, User Guide, Reference Guides, FAQ, Video tutorials, etc. Such forms of documentation are tailored to the user based on the user's system privileges (administrative, other internal, external, etc.) so that users do not see things that do not apply to their access privileges for the system. This approach makes documentation more relevant and prevents security issues.

(2) In support of system development and maintenance, we will prepare and make available (in escrow or similar) a full set of software libraries and documentation to ensure that the system can be maintained under all circumstances, even by parties other than Decatur.

5.15 Voter Outreach Requirements

Decatur very much understands the importance of voter participation. We are proud to have been associated with several initiatives worldwide to make voter registration and voting more accessible to all citizens. The US poses specific challenges. Decatur is no position to advocate specific action or policies. Instead, we focus on enabling technologies that would facilitate voter outreach in support of both voter registration and actual voting. They typically center on three aspects:

(1) Removing any unnecessary barriers:;
(2) Enhancing communication;
(3) Improved insight.

5.15.1 Removal of Barriers

Examples of the first category are:

- Tablet based voting (with ballots printed locally) for people in assisted living environments or group residential facilities, as pioneered in Denver, CO.
- Similarly, In Denver, CO, petitions can be validly signed on a tablet, facilitating ID verification of those who sign the petition.
- Acceptance of eSignature for voter registration (for example in Delaware).

5.15.2 Communication initiatives

- Social marketing through patterns of influence;
- Leverage the value of knowing who has already voted (to the extent it can be disclosed publicly). See for example the Facebook "I Voted" campaign.

5.15.3 Improved Insight

The incorporation of Ballot Trace (see our reference in section 1.1 on page 4) would provide election administrators with easy, up-to-date access to an interactive representation of how turnout is shaping up by neighborhood, ethnic background, age group, or any other demographic data. Such insight will help define target groups for outreach initiatives and

facilitate the customization of the outreach to the target group, as is widely supported by academic research (Lisa Garcia Bedolla and Melissa R. Michelson – "Mobilizing Inclusion", Yale University Press, 2012; and Dan P. Green and Alan S. Gerber, "Get Out the Vote", The Brookings Institution, 2008).

An analytics module (as suggested in section 1.1 on page 4) would provide, at the push of a button, insight into other relevant data such as:

- People who regularly voted but no longer do.
- People who regularly vote in certain elections (e.g. Federal), but not in other (e.g. local).

Below are examples of such visualized analytics. The first screenshot gives an overview of voter turnout for all counties with results for all ballots
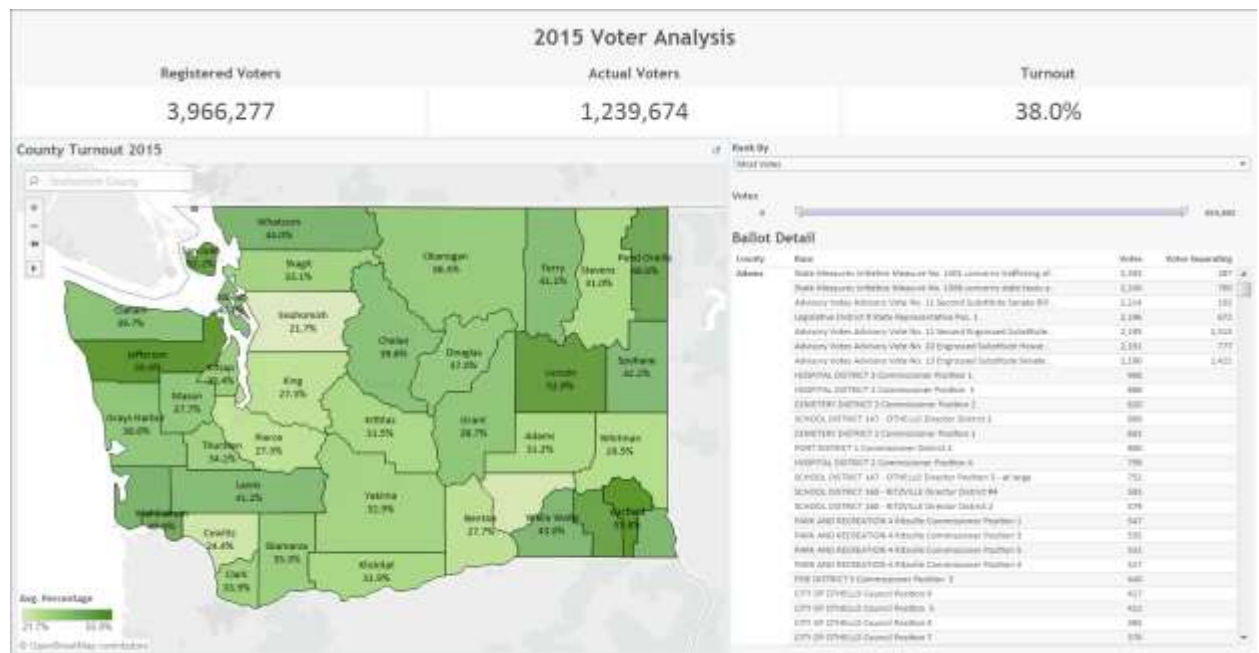
The second screenshot (below) shows how one can, interactively, drill down on one particular county.

5.16 Timeline Estimate

Based on our experience in building and implementing similar systems, we believe that an implementation schedule of approximately 9-12 months should suffice, subject to a rather complete agreement on the requirements at the outset of the Project. Such timeline is possible because Decatur's Secure ID Management System is a mature and tested product which requires relatively little in customization and expansion. Many aspects, such as documentation, is already largely done. Furthermore, because the core product is ready, we can start certain aspects of the Project, such as training, much earlier than in case of a product which is not yet fully flushed out.

5.17 Cost Estimate

Because many of the project requirements are, as of this date, not fully defined, it is difficult to provide a detailed cost estimate. At a high level, we do believe that the present budget will likely suffice for the initial build and implementation of the system. Training and added functionality, as well as county level customization, would be additional. Ongoing support and hosting (public cloud) would result in an annual cost in the high six figures. The investment in a private cloud setup, including full redundancy, would significantly increase such costs unless it makes use of existing state infrastructure.